

# NATIONAL BUREAU OF STANDARDS REPORT

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Report on  
H. S. PEISER'S VISIT TO VIET NAM AT THE REQUEST OF THE  
INDUSTRY DIVISION, U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT  
U.S. DEPARTMENT OF STATE

to  
Agency for International Development  
U.S. Department of State  
Washington, D.C.



U.S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS

## NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards<sup>1</sup> was established by an act of Congress March 3, 1901. Today, in addition to serving as the Nation's central measurement laboratory, the Bureau is a principal focal point in the Federal Government for assuring maximum application of the physical and engineering sciences to the advancement of technology in industry and commerce. To this end the Bureau conducts research and provides central national services in four broad program areas. These are: (1) basic measurements and standards, (2) materials measurements and standards, (3) technological measurements and standards, and (4) transfer of technology.

The Bureau comprises the Institute for Basic Standards, the Institute for Materials Research, the Institute for Applied Technology, the Center for Radiation Research, the Center for Computer Sciences and Technology, and the Office for Information Programs.

**THE INSTITUTE FOR BASIC STANDARDS** provides the central basis within the United States of a complete and consistent system of physical measurement; coordinates that system with measurement systems of other nations; and furnishes essential services leading to accurate and uniform physical measurements throughout the Nation's scientific community, industry, and commerce. The Institute consists of an Office of Measurement Services and the following technical divisions:

Applied Mathematics—Electricity—Metrology—Mechanics—Heat—Atomic and Molecular Physics—Radio Physics<sup>2</sup>—Radio Engineering<sup>2</sup>—Time and Frequency<sup>2</sup>—Astrophysics<sup>2</sup>—Cryogenics.<sup>2</sup>

**THE INSTITUTE FOR MATERIALS RESEARCH** conducts materials research leading to improved methods of measurement standards, and data on the properties of well-characterized materials needed by industry, commerce, educational institutions, and Government; develops, produces, and distributes standard reference materials; relates the physical and chemical properties of materials to their behavior and their interaction with their environments; and provides advisory and research services to other Government agencies. The Institute consists of an Office of Standard Reference Materials and the following divisions:

Analytical Chemistry—Polymers—Metallurgy—Inorganic Materials—Physical Chemistry.

**THE INSTITUTE FOR APPLIED TECHNOLOGY** provides technical services to promote the use of available technology and to facilitate technological innovation in industry and Government; cooperates with public and private organizations in the development of technological standards, and test methodologies; and provides advisory and research services for Federal, state, and local government agencies. The Institute consists of the following technical divisions and offices:

Engineering Standards—Weights and Measures—Invention and Innovation—Vehicle Systems Research—Product Evaluation—Building Research—Instrument Shops—Measurement Engineering—Electronic Technology—Technical Analysis.

**THE CENTER FOR RADIATION RESEARCH** engages in research, measurement, and application of radiation to the solution of Bureau mission problems and the problems of other agencies and institutions. The Center consists of the following divisions:

Reactor Radiation—Linac Radiation—Nuclear Radiation—Applied Radiation.

**THE CENTER FOR COMPUTER SCIENCES AND TECHNOLOGY** conducts research and provides technical services designed to aid Government agencies in the selection, acquisition, and effective use of automatic data processing equipment; and serves as the principal focus for the development of Federal standards for automatic data processing equipment, techniques, and computer languages. The Center consists of the following offices and divisions:

Information Processing Standards—Computer Information—Computer Services—Systems Development—Information Processing Technology.

**THE OFFICE FOR INFORMATION PROGRAMS** promotes optimum dissemination and accessibility of scientific information generated within NBS and other agencies of the Federal government; promotes the development of the National Standard Reference Data System and a system of information analysis centers dealing with the broader aspects of the National Measurement System, and provides appropriate services to ensure that the NBS staff has optimum accessibility to the scientific information of the world. The Office consists of the following organizational units:

Office of Standard Reference Data—Clearinghouse for Federal Scientific and Technical Information<sup>3</sup>—Office of Technical Information and Publications—Library—Office of Public Information—Office of International Relations.

<sup>1</sup> Headquarters and Laboratories at Gaithersburg, Maryland, unless otherwise noted; mailing address Washington, D.C. 20234.

<sup>2</sup> Located at Boulder, Colorado 80302.

<sup>3</sup> Located at 5285 Port Royal Road, Springfield, Virginia 22151.

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**NBS PROJECT**

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INDUSTRY DIVISION, U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT  
U.S. DEPARTMENT OF STATE**

by

**H. Steffen Peiser  
National Bureau of Standards**

This report has been written in collaboration with Mr. Niels C. Beck,  
Deputy Assistant Director, Industry, Division, U.S. AID/Saigon and  
after full discussion with Mr. Phi Minh Tam, Director of the Viet Nam  
Institute for Standardization, Republic of Viet Nam.

by

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## IMPORTANT NOTICE

NATIONAL BUREAU OF STANDARDS  
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Bureau of Standards, Washington, D. C.  
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Director of the National Institute of  
Standards and Technology (NIST)  
on October 9, 2015.

These accounting documents intended  
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**U.S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS**



## INTRODUCTION

In a memo of March 17, 1971 to Mr. H. E. Kusters, Associate Director for Commercial and Capital Assistance, Mr. G. E. Thompson, Assistant Director for Industry, stated that the following services were to be provided by Mr. Peiser:

1. Appraise the duties and opportunities of the Vietnam Institute for Standardization (VIS) in relation to the national goal of industrialization of VN with support from AID; plan the needed laboratory installations.
2. Consider whether any of the diverse types of services rendered by NBS to American industry, could benefit VN and, if so, to what extent NBS could render assistance to VIS while establishing similar, if appropriately modest, industry support.
3. Freely discuss with the Government of Vietnam (GVN) officials and U.S. AID staff general needs for standardization, production and quality controls, test laboratory facilities, marks of recognized quality, certification of products and manufactures, industrial extension services, applied research facilities, innovation and inventions as well as their protection; transfer of technology to VN, etc.

After his arrival in VN, Mr. Peiser with the collaboration of Mr. Niels C. Beck of the Industry Division sharpened up the aims as follows:

1. Advisory services on VIS planning for industrial testing.
2. Specific information on NBS extension services to developing countries as adapted to his appraisal of the VIS testing program and local industry needs.
3. Subsequent assignment of NBS technicians on TDY's to Saigon to support implementation.

The above functions should be executed in the framework of existing GVN and AID policies. To the extent that recommendations might influence future policies, alternative choices should be clearly presented in a summary report to be jointly written with Mr. Beck.



## CHRONOLOGY OF VISITS AND ENGAGEMENTS

(Includes personal observation - the entire section  
may be disregarded by readers)

### Friday, March 19

Arrival at Saigon's Tan Son Nhut Airport. Met by Mr. Niels C. Beck, Mr. Nam of his staff and representative of VIS, Mr. Le Du Khanh. AID paper work not complete, but good AID Hotel Miramonde booking. Discussion with Mr. Beck greatly appreciated.

### Saturday, March 20

Considerable formalities to start my AID personnel registration. (Note for future reference: Plague shots are required for Viet Nam. Several of the other formalities could be exasperating to U.S. staff, prior warning might soften the likely adverse reactions.) In the afternoon, discussion with Mr. Phi Minh Tam, Director of VIS. He drives me to church and is robbed in broad daylight while driving in his car at a busy intersection in full view of a policeman, by two youths on a motorbike. All over before I woke to what was happening.

### Sunday, March 21

I write all day to complete my Indian report.

### Monday, March 22

Scheduled meeting with Mr. H. E. Kusters, AID/Associate Director for Commercial and Capital Assistance, Mr. P. M. Faucett, Deputy Associate Director, and Mr. G. Edward Thompson, Assistant Director

for Industry. In fact, only Mr. Thompson was available briefly, later, for some useful discussion and directions for my stay. I did have an opportunity to meet Mr. Beck's colleagues in U.S. AID/IND:

Mr. A. W. Colley, Industry Advisor

Mr. George Napier, Fisheries Advisor

Mr. W. E. Pierce, Forestry Advisor

Mr. Elliot, Advisor

Mr. Garms, Advisor

Mr. Nguyen Ngoc Nam, Assistant to Mr. Beck

Mr. Nguyen Phi Bang, Advisor

Mr. Bui Du Long, Economic Specialist

Mr. Nguyen Nhu Cuong, Economic Specialist

Mr. Nguyen Thanh Toai, Economic Specialist

Mr. Buu Quan, Assistant Fisheries Advisor

Mr. Ocampo, 3rd Country Specialist (Industrial techniques)

Miss E. J. Hobbs, Secretary

Miss Pham Ngoc Huong, Secretary

Miss Nguyen Thi Thuy, Secretary

Visit to VIS Laboratory building Bien Hoa Industrial Park. It was broken into the night before and many smaller packages ransacked and some items stolen from AID equipment cases with contents worth more than \$1000. Security and guard arrangements had been inadequate. Lunch with Beck and Tam discussing necessary action to safeguard equipment.



Afternoon introduction to VIS staff:

Mr. Le Tan Kiet, Deputy Director, Mechanical Engineer (Quebec-AFNOR)

Mr. Le Du Khanh, Electrical Engineer (Iran)

Mr. Dinh Nguyen Trinh Giang, Animal Husbandry Engineer (Japan)

Mrs. Tran Thi Vi, Chemical Technician (FDA)

Mr. Vu Van Ninh, Chemical Technician (Fibers, presently in U.S. on PIO/P)

Mr. Tinh, Chief Administrative Section

Mrs. Lieng, Mr. Hoi, Mr. Canh, and Mr. Tu

Visit to VN Bureau of Mines Laboratory.

Tuesday, March 23

Accompanied by Mr. Nam (AID) and Mr. Giang (VIS) visit to Phu Tho Technical Center and Engineering College. Received by Director, Dr. Nguyen Ngoc Tinh (French trained), and Dr. Truong Ngoc Quy (University of New Hampshire and Vanderbilt University, Tennessee). There are five advanced schools: Civil Engineering (50 students per year); Electrical Engineering (40 students); Mechanical Engineering (40 students); Merchant Marine Engineering (40 students); and Chemical Engineering (30 students). I was shown all in some detail except the last, which has hardly any equipment yet and at which Mr. Tam (VIS) is an adjunct professor. Two degrees are awarded in engineering, one after 4 years of post-graduate work and the technical degree after 2 years of post-graduate work. In addition, a larger number of undergraduates are in this college in facilities I did not see. The science library is modest, much of it consists of out-of-date texts under lock and key.

Language is a problem. There is a very new language lab at which English alone is taught at four levels. UNESCO has supplied laboratories (i.e. hydraulics) and specialists, mostly French. I met Dr. Norman Dillman U.S. AID/ED on assignment from University of Missouri and continued discussion at later lunch meeting.

In Mr. Beck's absence (sickness), I report to Mr. Thompson on theft at VIS.

Afternoon visit to Pasteur Institute, Director Dr. Nguyen Van Ai, where we were shown food and analytical chemistry, entomology and immunology (plague) laboratories partly operated in collaboration with Walter Reed Army Hospital.

Interview and discussion accorded to Mr. Thompson, Mr. Beck, and myself by Vice Minister for Industry. Mr. Pham Minh Duong, at Ministry of Economy where the other Vice Minister is for Commerce.

Wednesday, March 24

Brief visit to Industrial Development Center (barely time to look at exhibits) in central Saigon location. Attendance with Mr. Tam, Mr. Beck, and Mr. Nam at inauguration and inspection of the Vietnam Agricultural Machinery Co. under license from Kubota, Osaka, Japan at Bien Hoa Industrial Park by H. E. Nguyen Van Thieu, President of the Republic of Vietnam. I was seated almost immediately behind the President and next to the Vice Minister for Education with whom I exchanged only a few pleasantries.

Visit to Rubber Research Institute in Long Khanh, about 50 miles North of Saigon where we were shown all the laboratories by co-director

Quan and acting co-director Yves Banchi (French of Italian descent),  
lunched in beautiful club, saw realistically equipped analytical laboratory,  
followed research project on latex stimulation of trees, and discussed  
proposal for agro-industrial institute patterned on KIST (Korea Institute  
of Science and Technology).

Visit to Toan Phat Plywood plant in Bien Hoa Industrial Park  
operated by Mr. C. K. Hyland, that remarkable Australian entrepreneur  
of duck feather fame who returned from Viet Cong captivity.

Visit to Sicovina Textile Mill in Thu Duc producing cotton fabrics  
for the military (VN).

Tuesday, March 25

Accompanied by Mr. Kiet and Mr. Tung of Sonadezi (Societe Nationale  
pour le Developpement des Zones Industrielles), we toured four plants  
in the Bien Hoa Industrial Park.

Eternit, plant for asbestos cement roofing and pipes

Vicasa, steel rolling mill

Cogido, paper plant, managed by Vice Minister Duong

Glass Tube Factory and lunch at the invitation of the president,  
former Labor Minister of VN, Mr. Long. The Plant Manager, Dr. Nong Van Be,  
will come to visit the U.S. soon (Owens-Illinois).

Afternoon visit with Mr. Beck to Export Promotion Center, Mr. Le Tan Loi,  
Director, Mr. L. Wallach, UNCTAD/GATT advisor.

Discussion at VIS with Mr. Tam about industrial extension services  
and advisory committees.

Evening dinner party at Bong Lai Restaurant at invitation of VIS Director Tam, attended by Mr. Faucett, Mr. Thompson, and Mr. Beck of AID; Mr. Quan and Mr. Banchi of the Rubber Research Institute, Mr. Nguyen Dang Khoi, Manager, Research and Training of the Industrial Development Center, Dr. Le Manh Hung, Director, Mechanical Engineering College, Mr. Tam and Kiet of VIS and myself.

Friday, March 26

Discussion with U.S. AID/IND staff on industrial standards in VN. Dinner with Mr. and Mrs. Beck.

Saturday, March 27

Visit with Mr. Tam and staff to VIS laboratory to inspect and report on damage to equipment. Discussion on standards committees and additional VIS functions.

Sunday, March 28

Report writing.

Monday, March 29

Visit VIS to discuss with Mr. Tam and Mrs. Vi report on loss of equipment by burglary at VIS laboratory (see appendix).

Visit College of Sciences, Saigon with 6000 undergraduates and fewer than 100 accepted for post-graduate degree studies. Three have obtained Ph.D's. Professor Chu Pham Ngoc Son (Ph.D. University of Delaware, U.S.A.) heads an interesting Physical-organic Chemical Laboratory with IR spectroscopic equipment for research on essential oils (current projects are on lemon grass and coconut oils).

U.S. AID debriefing with Mr. G. E. Thompson who emphasized the need for good preparation for an AID program review.

Lunch with U.S. AID/IND and VIS staff.

Report writing in draft.

Tuesday, March 30

Leave Saigon 9 AM.

## SOME FINDINGS, CONCLUSIONS, OBSERVATIONS AND COMMENTS

### RELEVANT TO THE RECOMMENDATIONS

This report presents observations, comments, and recommendations based upon a recent visit to Viet Nam, drawing liberally upon previous reports and experience, especially that of Mr. Niels Beck, Deputy Assistant Director, Industry Division of the AID Mission to Viet Nam who collaborated with me throughout this study. We have freely discussed problems and opportunities with Director Phi Minh Tam, and we have incorporated some of his thinking. For a fuller appreciation of our evidence the reader is advised to refer to the following:

1. The Postwar Development of the Republic of Viet Nam:  
Policies and Programs, Vols. I and II, Joint Development  
Group, March 1969.
2. Third Industrial Planning Paper, U.S. AID/IND by N. C. Beck,  
May 1969.
3. Challenging Future for Vietnamese Exports, Vietnamese Feature  
Service (TCB-088) December 1970.
4. Extension/Productivity Services via a Developing Country  
Standards Institute by Mr. Phi Minh Tam and Mr. Niels C. Beck,  
NBS/AID Seminar on Industrialization (1971).

#### The GVN

The Government has now gone on record by Presidential statements and other pronouncements that it wishes to support a vigorous export expansion program, starting from a very modest base. Supporting legislation, however,

is unlikely to be acted upon until after this year's elections. The Standards Law has been passed by the Lower House but not yet by the Upper House which is not elected this year. Vice Minister Duong has two functions. He is Vice Minister for Industry and General Manager of a paper mill (Cogido). Officially, he is much occupied in creating an industrial bank. He believes productivity is likely to be a problem because of deep-seated attitudes of the Vietnamese people towards go-slow tactics as a means of resistance to the French. Quality control is being widely discussed as a key to successful industrialization; the stage is set for a meaningful and effective standardization program, provided the promoters of standards and quality control understand that industry has to move from a very modest base. Emphasis on regional trade in SE Asia is becoming an approved policy supported by the U.S. The Government, however, does not yet appear to have implemented strong programs and a wide-ranging tax structure to favor import substitution for products for which satisfactory manufacture is possible in VN, let alone instituted strong policies for export enterprises. Mr. Long, Manager of the Glass Tube Factory, former Labor Minister and present Board Member of the National Bank, complained that his tubes were not finding acceptance by the pharmaceutical industry because of political pressure from the importers and the desire of the Government to continue receiving the tax on imports. Moreover, the importers received dispensation from the deposit requirement, because pharmaceuticals are considered essential, whereas when he imports borax raw material



he must make 100% deposit. His vigorous complaint may help change the ruling by the GVN, but facing such obstacles is a way of life for the industrialist.

#### U.S. AID

The Mission now wishes to promote a vigorous GVN export program. Gone are the days when it was feared that, during a prolonged war, manufacture for domestic consumption or export would accelerate inflation. Already, virtually all worthwhile industrial activities now operative in Viet Nam owe their existence to American support given after careful screening. Mr. Faucett, Deputy Associate Director for Commercial and Capital Assistance, expressed his conviction that every really good project could be funded. Industry can buy dollar imports at a specially favorable rate VN\$118 to U.S.\$1, compared with VN\$275 to \$1 official rate, and VN\$400 to \$1 blackmarket rate. Such purchases are subject to a deposit of up to 400%, about 6 months to 1 year administrative delays, GVN tax on most commodities, and a "buy American" clause. There is a tendency to support private enterprise where this makes good sense; French and Australian enterprise is generously encouraged. The American entrepreneur is as yet not much in evidence. The salability of GVN governmental enterprises to the private sector in the U.S. has been considered. Kaiser has, for example, shown an interest in cement plants.

## The Viet Nam Economy

In this brief section on the economy of Viet Nam I must first warn the reader to obtain the detailed analyses that are available if he wishes to make important decisions. Wages, prices, and the standard of living in Saigon are to this observer surprisingly high. The inflation rate was very high (about 40% p.a.) till last October, when devaluation effectively gave Viet Nam a chance to compete in world markets and stem inflation with apparent success. The interest rate, even though it has now been advanced to 24%, seems to me difficult to maintain if investment capital is sought. Imports amount to about \$800 million p.a. Exports are almost negligible, being about 2% of imports. The deficit is made up by U.S. AID/CIP imports and American G.I. and U.S. Army purchasing in and out of country. Vietnamization or peace will aggravate this picture, unless exports take over.

David Lilienthal, Chairman, Development and Resources Corporation, a U.S. organization which made a full study of the economy of VN, has put aims high. He hopes for Viet Nam to "become a viable, prosperous community enjoying with self-reliance the fruitful exchanges of products, people and ideas with other nations." The country still has a long road to reach that stage.

## Export Opportunities

Traditional exports are mainly rubber, rice, and tea. Of the 1958 total of \$65 million in exports, these commodities accounted for 63%, 21%, and 9% respectively. Of the reduced 1969 total of \$14 million,

rubber accounted for 82%, rice nothing, and tea a grand total of \$5,000! The remaining 7% of 1958 exports were largely in iron scrap, beer (French types), fish products, cinnamon (best quality), salt, and duck feathers (best quality). There is not one of the above products that under favorable circumstances and with the right leadership might not yield appreciable exports once again, but each of them offers individual problems which will not be discussed in detail in this report. Wood products, fish, and seafood products offer the most substantial hope. New export opportunities have also been discussed in the reference literature. The following appear to have greatest potential: hardwood products, such as plywoods, poles, veneers, and furniture; sand; vitreous silica; pottery; textiles; clays; tropical fruit; oil seeds (peanut, soya) and their oils, vegetable and vegetable oils; straw, paper, pulp, and rope; cocoa, coffee, and pepper; corn and sorghum; chicken, ducks, swine, and cattle; lacquer, bamboo, tortoise shell, ivory, buffalo horn, mother of pearl, silk, cassaca, rattan, marble, coal, and seagrass. Even the tourist industry could make a real contribution in a lovely land that through recent history has become so closely tied to that of the U.S.A. In most instances, the problem is chiefly to produce a sufficient quantity of a uniform quality, preferably to a certified and recognized standard. The Export Promotion Center is only starting its work but seems to have an important collaborative and complementary relationship to VIS. EPC has asked that standards for items with good export prospects be given high priority. In this way marketing difficulties can be faced with greater confidence.

## Security

Although industrial activity is much less disturbed now by war than one might imagine, the inability to travel freely to some parts of the country is an important adverse factor. The forestry experts cannot survey the forests, the fishery grounds cannot be fully exploited, and the pure sand cannot be moved to Saigon by the least expensive barge transportation. Petty thievery is a serious problem. Guard systems tend to be unreliable.

VIS has a centrally located office opposite the Ministry of Economy and the shell of a laboratory in the Bien Hoa Industrial Park. It has U.S. AID donated equipment worth over \$80,000 in crates from which some items were stolen (see appendix). The laboratory still needs fittings, partitions, furniture, power, water and consummable supplies. VIS to date has promulgated 66 standards with the following titles: National Flag of Viet Nam, Dry cells, Bicycle and motorcycle tires, Bicycle and motorcycle tubes, Soap, Powder Soap, Toilet Soap, Fish Sauce, Monosodium Glutamate, Drinking Glass, Nails, Names and definitions of common fibers, Names and definitions of common textile fabrics, Expression of linear density of fibers, Determination of the Twist Direction of fibers and related materials, Labels printed on fabrics, Bicycle frame, Bicycle fork, Bicycle steering bar, Mild steel wire, Medium hard steel wire, Hard steel wire, Testing methods of steel wire, Welding rods, Soya sauce, Determination of nitrogen in foodstuff, Testing methods of soap, Determination of pure soap,

Determination of unsaponified matters, Labels for chemicals, Hydrochloric acid, Sodium hydroxide, Bolts and nuts, Ballast for fluorescent lamps, Incandescent lamp, Soft copper wire, Hard copper wire, Aluminum wire, Canned fish, Acid lead batteries, Steel drum, Kerosene stove, Synthetic detergent, Glass bottle, Fresh milk, Khaki fabrics, Neutral glass tube, Dimensions of bolts and nuts, Annealed steel wire, Galvanized steel wire, Table electric fan, Names and definitions of common papers and boards, Characteristics and classification of papers and boards, Dimensions and sizes of paper, Copybook paper, Typing paper, Handwriting paper, Ceiling electric fan, Tinned soft copper wire, Tinned hard copper wire, Galvanized steel wire net, Method of measuring dimensional changes of fabrics after washing, Modular coordination: Basic Module, Testing methods of detergent, Methods of sampling paper and board for testing, Method of conditioning paper and board.

VIS staff are on the GVN pay scales which are less than half of equivalent industrial salaries. Moonlighting is quite widespread and unavoidable. In consequence, the hiring of top quality staff is virtually impossible. Director Tam sees drawbacks in hiring women. The standards library has been given many copies of other national standards including a complete set of German DIN standards. The application of GVN to join ISO has still not been accepted. Although we have not heard of a refusal to grant membership to a sovereign state, we hear that a unanimous vote in council is a requirement. Director Tam fears that the Communist Bloc may be to blame for the impasse. NBS will try to investigate the problem which the President of ISO, Dr. F. L. LaQue thought could be quickly solved.

## The Standards Law

The Law, as introduced to the Legislature of VN and passed by its Lower House, contains the following provisions, each of which will be amplified by a detailed implementation order:

1. VIS is reconstituted as the semi-autonomous "National Institute for Standards (NIS)."
2. NIS is to serve as keeper of the national measurement standards.
3. NIS is to be governed by a Management Board of about 14 persons some serving ex officio, more than 50% shall be government officials.
4. A National Council for Standards shall be formed as a private body composed of representatives from 40 to 50 organizations, who shall elect its president. NIS shall serve as executive secretariat of NCS and its divisional committees, technical committees, and study groups, with the purpose of elaborating, approving, disseminating, and revising standards, encouraging wide participation in this work.
5. Whereas the use of the standards is voluntary, it is incumbent on GVN agencies to give priority to their use especially for their own purchases.
6. NIS may issue and authorize the use of a standard mark of good quality.
7. Inspection for import and/or export can be required by GVN.
8. A system of approved inspectors, inspection organizations, and product certification is to be set up.



9. Punishments are laid down for illegal representation of compliance with standards or use of the mark of good quality.
10. The finances of NIS are regulated. All its activities must be regularly reported. It is authorized to accept financial assistance from GVN, U.S. AID and may collect fees. Salary scales are controlled by the Management Board and are not limited by GVN scales for civil servants.

#### Other Applied Research Institutes

Apart from mostly modest testing laboratories at industrial plants Viet Nam appears to have very few laboratories that could help industrialization by standardization, quality control, and applied research. Exceptions no doubt are the military standards laboratories which the U.S. Forces propose to dissolve. Mr. S. E. Russek of Hughes Aircraft thought equipment from these laboratories might be turned over to the civilian sector of the GVN. By Vietnamization the Army of VN will have prior needs. Security requirements make civilian collaboration difficult, and we cannot at this time pursue this possible collaboration. Facilities at the Phu Tho Technical Center and Engineering College, under the Ministry of Education (see Chronology Section March 23) are also a significant resource. The College plans in the future to move into the vicinity of the VIS laboratory site which will increase its usefulness and availability. Most professors have part time industrial appointments, and industrial liaison appears excellent. The Ministry of Education also runs the National Council for Scientific



Research, as yet a paper organization. Seeds of future rivalry with VIS are discernible.

Outstanding is the organization of the Rubber Research Institute (see Chronology Section, March 24). With modest but well arranged equipment they serve the rubber industry and are diversifying to other agricultural products. Members of that Institute have proposed an ambitious independent R & D Institution especially for the agri-industries.

The Pasteur Institute has classical analytical chemical facilities to serve the food industry but is presently not organized to help effectively in a substantial export control activity.

The College of Science is generally held to be poorly adapted to applied research, but I find this untrue for some of its departments. For example, the infrared spectroscopy group is probably unique in Viet Nam and could be of great value to many potential industrial enterprises, such as in determining the purity of essential oils.

The Bureau of Mines Laboratory may merge with VIS, but may not add greatly to existing competences. I heard that the Atomic Research Center does have considerable facilities but did not visit there. It is my impression that collaboration and mutual support between existing organizations would solve some serious problems. The most general and widespread of these is connected with much unused or unusable technical equipment in Viet Nam.

## RECOMMENDATIONS

1. If the Standards Law is passed by the Legislature, Viet Nam will have a broad standardization, inspection, and certification system, with great potential for this nation's future in world trade. Much will still depend on the individual implementation orders. To the maximum extent possible, AID should give VIS the opportunity for detailed discussion of each such order with relevant authorities in the U.S., such as the American National Standards Institute, the American Society for Testing and Materials, NBS, FDA, National Conference of Standards Laboratories, NCWM, etc. AID should also make it possible for a full English translation of the Standards Law to be made available.
2. A small country taking its first major steps into export of relatively high technology products must make optimum use of equipment needed both for testing conformity with standards and for applied research. The Standards Law intentionally skirts this problem. The NIS should take constructive steps to ensure collaboration with agencies of the Ministry of Education and the colleges supported by that Ministry. A firm decision has been made on the move of the Engineering Colleges to a nearby site. This move I regard especially desirable. Long before that, facilities at the College should be employed for testing and standardization work as part of the collaboration. In some areas, electrical measurements, for example, minor additions to available facilities will give Viet Nam all the measurement capabilities needed.

3. Technical organizations should draw up and maintain a list of all major scientific and test equipment available in Viet Nam. (Work on such a task has been started.)
4. In a careful analysis of standardization and applied research and development organizations in developing industrializing countries, the U.S. National Academy of Sciences has come to the conclusion that such governmental organizations usually fail to achieve their potential. A common factor is that governmental salary scales fail to draw adequately motivated, well qualified and innovative staff who are an essential prerequisite for success of such laboratories. It is recommended that the Board of Management of NIS make generous use of the latitude provided in the Law, and that the Director use great care in the selection of staff members both in quality and in number. A possible danger is that to fill available vacancies now on the salary scale now permissible might jeopardize the recruiting capability of the entire future organization.
5. The two proposals for major research and development contracts, - by Hughes Aircraft and the Rubber Research Institute - differ in scope, aims, duration, etc. but they both deserve careful consideration. With respect to the Hughes Aircraft proposal, the inclination of the authors is sharply to divide the civilian and military standardization programs at least for the duration of the war. Nevertheless, the recommended systems approach to standardization and cost minimization appears sound. The cost seems high - a competitive bid might be

sought. The Rubber Research Institute proposal is based on a sound analysis closely paralleled by the U.S. NAS/NRC study about which the authors evidently were ignorant. The emphasis of the proposal is on agri-industrial activities. VIS might do well to consider a parallel proposal for engineering and chemical applied R and D, perhaps in collaboration with the National Council for Applied Research, provided that the decision is confirmed for VIS to include R and D in their mission.

6. A weakness of all VN organizations visited is the difficulty they experience in showing and explaining themselves to interested inquirers and visitors. It is recommended that VIS lead the way to effective implementation by careful explanation of its goals. Such a description might begin along the following lines: "The VIS offers a service to all manufacturers and users of industrial products. VIS helps to elaborate and disseminate standards and the corresponding systems of product testing. It also awards an emblem of excellence. The manufacturer can thus control his production and appraise his product; the workman can learn to safeguard his health and the customer can gain assurance of a fair purchase. The ready acceptance of the nation's goods in world trade can be achieved if all segments of society will constructively collaborate with VIS . . . . ." An attractive booklet in English might be prepared on the lines of the existing pamphlet in the Vietnamese language. Flip charts should also be prepared for visitors in the three commonly used languages

7. NIS has done good thinking on the advantages of keeping standards voluntary. The authors endorse the U.S. position on the advantages of a voluntary standards system. The conceptually simpler mandatory standards system becomes difficult and costly to enforce. The VIS ideas on extension service is also warmly endorsed, but the system of fees will need to be considered in more detail.
8. As the co-directors of the Rubber Research Institute point out a negative answer in a feasibility study can be as valuable to an industrialist as any positive one. Moreover, the implementation order for NIS staff should carry a special code of behavior whereby integrity, avoidance of all conflicts of interest, and the cautious but firm assessment of all measurements made become mandatory at all times.
9. In agreement with Director Tam we urge the rapid completion of the laboratory facilities so that the following sections can become operative as soon as possible. The sections are listed in order of priority:
  - (1) Mechanical testing
  - (2) Wet chemical analysis
  - (3) Electrical testing
  - (4) Weights and measures standards - starting with a  
Russel Balance
  - (5) Metallographic testing
  - (6) Non-destructive testing
  - (7) Optical, X-ray diffraction and special spectroscopies
  - (8) Telecommunication equipment testing

Apart from specialists trained by or in accordance with the advice of NBS, VIS should add specialists in the following order as the situation warrants.

- (1) Library and information science
- (2) Building technology
- (3) Statistics
- (4) Mathematical analysis and linear programming
- (5) Computer science

10. NBS should assist VIS to the maximum extent possible in the following ways:

- (a) providing training opportunities
- (b) advising on third country training
- (c) handling U.S. AID orders for copies of U.S. standards needed by VIS
- (d) assisting in acceptance of VIS in ISO.

11. In addition, we propose the following general plan for assistance by experts from the U.S. or third countries:

- (A) When the main partitions and ceilings are in place and water and electricity services are permanently installed and half the laboratory is air conditioned one expert should come for one to two months to advise on layout and installation of major equipment as well as on expansion plans, if really needed.



(B) After short intervals specialists on the following fields should then follow as the laboratory develops:

- (a) Physical standards, weights and measures
- (b) Mechanical testing
- (c) Building Technology
- (d) Chemical analysis
- (e) Instrument repair
- (f) Electronic repair
- (g) Metallographic studies
- (h) Non-destructive testing

NBS will tend to send highly experienced specialists from their staff rather than technicians with limited experience. Results will we believe justify that preference provided they are supported adequately for speedy progress. Their in country stay can be held to 1 to 3 months.

12. VIS has some excellent equipment of considerable value. VIS should regard it as a duty to use it as soon as possible for the benefit of VN industry. They should safeguard it by taking reasonable precautions against misuse and theft. It should be well housed and well maintained. Auxiliary requirements should be identified in good time by planning for the opening of successive facilities. For example 3 months before the analytical laboratory is finished, the chemicals should be on order - a list of requirements has already been prepared.
13. Above all we recommend that NBS and VIS make every effort to remain in continued collaborative contact.



## APPENDIX

### H. S. PEISER'S REPORT ON BURGLARY OF VIS EQUIPMENT DONATED BY U.S. AID

The inspection on March 27, 1971 was made in the presence and with the collaboration of Mr. Tam, the Director of VIS.

The burglary was reported on March 22, 1971, when I first visited the laboratory. It took place (almost certainly) during the previous night. A preliminary study was made and a report given to U.S. AID on that day. I offered to help in the detailed study of the boxes and their remaining contents. March 27, 1971 was the agreed date. I requested that nothing further be moved till then, but in fact "to help me" considerable clearing up had been done which made it harder to sort parts and contents strewn about by the thieves. The "clearing up" was done or supervised in good faith, I am sure, by a VIS staff member not available for questioning on March 27, 1971. Another factor that made the task harder was that the list of items in the boxes (as numbered by VIS when they did the check after arrival) was missing. I was told it was impossible to produce that list till Monday March 29, 1971. The list was, therefore, inspected on Monday at 8 AM when a check was also made on the value of the missing items. A copy of the VIS list was then supplied. The VIS staff member, Mrs. Vi, evidently had done a very creditable job in assessing the loss. Excellent cross checks were obtained. My final list of all opened cases with the estimated loss and damage is summarized in the attached Table. In all 23 boxes were ransacked. The value of articles damaged or missing is approximately \$1,800 out of a total of approximately \$82,000 received.

TABLE OF ALL OPENED CASES WITH LOSS

<u>VIS BOX NO.</u>	<u>USAID IDENTI- FICATION NO.</u>	<u>DESCRIPTION OF ITEMS WITH DETAILS WHERE LOSS IS INVOLVED</u>	<u>ADDITIONAL COMMENTS</u>	<u>VALUE OF DAMAGED OR STOLEN ITEMS</u>
5	9179-105M	5120-221-1114 Woodworking Vise, Wilton Tool, Schiller Park, Ill.	Stolen	U.S. \$14
7	9179-245N	Hand Files	Stolen	9
8		Heavy Vise	No Damage	
16	9179-265N	5210 NSL Dead Weight Micrometer, Dial M Model DW, E. J. Cady & Co., Chicago, Illinois 60603	Other Micrometer OK	266
19	9179-975N	Verniers - Insured 5174, Mausner Equipment Co., L. I., N. Y. 11514	Stolen	150
21	615, 625, 645, 655P	Electrical Instruments AC Microammeter, Ammeter & Voltmeter, DC Voltmeter	Stolen	170
37	7650	Glas-Col Heating Mantles Cut 0-106 and cords all believed recovered. Pt crucible missing	Stolen	250
54/3		Corning Vacuum Dryer recovered	OK	
54/23		Erlenmeyer flasks	OK	
54/27		-do-	OK	
54/40		Box slightly burnt presumably by candle	Contents OK	

VIS BOX NO.	USAID IDENTIFICATION NO.	DESCRIPTION OF ITEMS WITH DETAILS WHERE LOSS IS INVOLVED	ADDITIONAL COMMENTS	VALUE OF DAMAGED OR STOLEN ITEMS
54/42		Griffin beakers with spout	OK	
55/56		Fisher scientific Class 5 Weight Set opened, all weights recovered, suggest reclean and recalibrate by NBS procedure	Only trays stolen	\$10
63	835N	Van Waters and Rogers, Waring Commercial Blenders Model CB5-20656 Cat. 58985	Stolen	295
67	9179-205N	Colorimeter Coleman (Perkin Elmer Corp., Maywood Ill. Model 8-006 Serial 2485 (Note Box, Cuvette, Adaptors OK)	Stolen but recovered 2 filters 8-203 and 8-209 worth \$30	320
70	9179-675N	Coleman Nitrogen Analyzer 13-109-100VI, 29-340 Thermometer and 29-410 Combustion Boats stolen	The rest carefully checked seems OK	19
73		First Aid Kit. Box OK. Some drugs and chemicals spoilt or damaged (1 bottle broken)	Suggest no replacement	
74	9179-145P	VIS has packing list available but hard to read, missing 3 clamps		24
76	9179-105N	Scientific Products, Arthur Thomas Co. Order No. 8047 Vine Street, Pha. Pa. 19105 Henry Troemmer, Z1254 Pha. Pa. 19142, Menlo Park, California 94025	Weight Set Stolen	55
86/8	9179-225N	Vacuum Pump Ser. 18-22783, Precision Scientific Cat No 10284 (69028) 3737 W. Cortland Chicago, Ill. 60647	Stolen	145

<u>VIS BOX NO.</u>	<u>USAID IDENTI- FICATION NO.</u>	<u>DESCRIPTION OF ITEMS WITH DETAILS WHERE LOSS IS INVOLVED</u>	<u>ADDITIONAL COMMENTS</u>	<u>VALUE OF DAMAGED OR STOLEN ITEMS</u>
93		Westinghouse Thermostats 2 cracked open Q672 C 10031 Honeywell	We have repaired seem OK to use	
94	0180-E051	Hand tools		\$52
120		Knox 60 Lab Cleaner 1 Box broken	Very minor spill	
127/6		Only 1 of 50 Polyethylene Bottles missing	None broken	
TOTAL:				\$1,779





